

Amendments to the Drawings:

The attached drawing sheet includes new Figures 5 and 6. In particular, Figure 5 shows one embodiment of a ladder configuration of BAW resonators. Figure 6 shows one embodiment of a lattice configuration of BAW resonators. The specification is also amended to include corresponding descriptions.

REMARKS/ARGUMENTS

In the Office Action mailed July 30, 2008, claims 7-12 and 14-25 were rejected. Additionally, the drawings were objected to. In response, Applicants hereby request reconsideration of the application in view of the proposed amendments and the below-provided remarks. Applicants submit that the proposed amendments place the present application in condition for allowance or in better condition for appeal.

For reference, proposed amendments are presented for claims 7, 11, 13, 18, 20, and 25. In particular, the proposed amendment for claim 7 is presented to clarify that the uneven surface is on a rear side of the substrate. The proposed amendment for claim 20 is also presented to clarify that the uneven surface is on the rear side of the substrate. These proposed amendments for claims 7 and 20 are supported, for example, by the subject matter for Fig. 1 described at page 4, lines 14-25, of the specification. The proposed amendment for claim 11 is presented to clarify the disposition of the absorbing layer relative to substrate. This proposed amendment is supported, for example, by the subject matter for Figs. 2 and 3 described at page 4, line 26, through page 5, line 15, of the specification. The proposed amendment for claim 13 is presented to use correct antecedent basis, in light of the proposed amendment for claim 7. The proposed amendment for claim 18 is presented to add punctuation at the end of the claim. The proposed amendment for claim 25 is presented to clarify that the absorbing layer is disposed on the uneven surface of the substrate. This proposed amendment is supported, for example, by the subject matter described at page 4, line 26, through page 5, line 15, of the specification.

Withdrawal of Finality

As a preliminary matter, Applicants respectfully note that the finality of the present Office Action is premature because the Office Action does not present rejections or indicate the allowability of every claim in the application. In particular, the Office Action does not present any rejections for claims 17-19. Additionally, claims 17-19 are not objected to. Additionally, claims 17-19 are not indicated as reciting allowable subject matter. Although the summary of rejections listed in the Office Action Summary is

inclusive of claims 17-19, the body of the Office Action does not present any rejections for these claims.

Therefore, given that the present Office Action does address the status of claims 17-19, Applicants respectfully submit that the finality of the present Office Action is premature. Accordingly, Applicants respectfully request that the finality of the present Office Action be withdrawn. Additionally, Applicants request that the Office Action Summary be corrected to show that claims 17-19 are not presently rejected and request that the Examiner indicate the status of allowability of claims 17-19.

Claim Rejections under 35 U.S.C. § 112, first paragraph

Claims 20-25 were rejected under 35 U.S.C. 112, first paragraph, as purportedly failing to comply with the enablement requirement and the written description requirement. In regard to the enablement requirement, the Office Action states that the claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In regard to the written description requirement, the Office Action states that the claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Both of these rejections specifically refer to the recited means for suppression of a pass-band ripple in a ladder or lattice type configuration.

As a preliminary matter, the rejections of claims 20 and 23-25 under the enablement and written description requirements are not supported by the reasoning presented in the Office Action. The rejection in the Office Action specifically refers to language that is found in claims 21 and 22, namely the ladder and lattice configurations, but the Office Action does not present any reasoning related to the specific limitations of claims 20 and 23-25. Therefore, the rejections of claims 20 and 23-25 based on the enablement and written description requirements should be withdrawn.

In regard to the rejections of claims 21 and 22 based on the enablement requirement, in order to properly support a rejection based on the enablement requirement, the Office Action must present a factual analysis of the disclosure to show

that a person skilled in the art would not be able to make and use the claimed invention without resorting to undue experimentation. MPEP 2164.06(c). Here, the Office Action does not address the ability of one skilled in the art to make and use the ladder and lattice configurations without resorting to undue experimentation. In fact, the Office Action does not provide any analysis related to the undue experimentation that might be required by one of ordinary skill in the art to make and use the ladder and lattice configurations recited in the claims. Rather, the Office Action merely concludes, without support, that the ladder and lattice configurations are not described sufficiently to meet the enablement requirement. However, this mere conclusion does not present a factual analysis of the disclosure to show that a person skilled in the art would not be able to make and use the claimed invention without resorting to undue experimentation. Therefore, Applicants respectfully submit that the Office Action does not establish a reasonable basis for questioning the adequacy of the disclosure under the enablement requirement. Accordingly, Applicants respectfully request that the rejections of claims 21 and 22 based on the enablement requirement of 35 U.S.C. 112, first paragraph, be withdrawn. To the extent that the rejections of claims 20 and 23-25 rely on the same conclusions as the rejections of claims 21 and 22, the rejections of claims 20 and 23-25 based on the enablement requirement of 35 U.S.C.112, first paragraph, should also be withdrawn.

In regard to the rejections of claims 21 and 22 based on the written description requirement, the MPEP recognizes that there is a strong presumption that the original language of the claims is supported by an adequate written description in the specification. MPEP 2163.03. Here, in the present application, the subject matter in the specification uses the exact same language, specifically referring to “ladder” and “lattice” configurations. In particular, the specification describes “means for suppression of pass-band ripple in a ladder or in a lattice type configuration.” See, page 3, lines 6-12 (emphasis added). Thus, not only is the language of the indicated claims described in the specification, but the indicated language is explicitly referred in the specification using the same language that is indicated in the Office Action. Therefore, Applicants assert the claims are supported by the specification as filed because the language is within the scope of the written description provided in the specification, and the specification explicitly provides antecedent basis for the indicated language of the claims. Accordingly,

Applicants respectfully request that the rejections of claims 21 and 22 based on the written description requirement of 35 U.S.C. 112, first paragraph, be withdrawn. To the extent that the rejections of claims 20 and 23-25 rely on the same conclusions as the rejections of claims 21 and 22, the rejections of claims 20 and 23-25 based on the written description requirement of 35 U.S.C. 112, first paragraph, should also be withdrawn.

Claim Rejections under 35 U.S.C. 112, second paragraph

Claims 11 and 25 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. In particular, claims 11 and 25 were rejected because the claims include the term “uneven surface of the substrate comprises an absorbing layer.”

In regard to the rejection of claim 11, Applicants submit that claim 11 is canceled. Therefore, the rejection of claim 11 is moot.

In regard to the rejection of claim 25, Applicants submit that proposed amendment for claim 25 is presented to clarify that the absorbing layer is disposed on the uneven surface of the substrate. Accordingly, Applicants respectfully request that the rejection of claim 25 under 35 U.S.C. 112, second paragraph, be withdrawn.

Claim Rejections under 35 U.S.C. 102 and 103

Claims 7, 8, 11, 12, 14, and 16 were rejected under 35 U.S.C. 102(e) as being anticipated by Nishihara et al. (U.S. Pat. No. 6,734,763, hereinafter Nishihara). Additionally, claims 20-25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Nishihara. Additionally, claims 9, 10, and 15 were rejected under 35 U.S.C. 103(a) as being unpatentable over Nishihara in view of Kobrin et al. (U.S. Pat. No. 5,936,150, hereinafter Kobrin). However, Applicants respectfully submit that these claims are patentable over Nishihara and Kobrin for the reasons provided below.

Independent Claim 7

Claim 7 recites “a substrate disposed opposite the piezoelectric layer relative to the bottom electrode, wherein the substrate comprises an uneven surface to suppress a

spurious mode, wherein the uneven surface is on a rear side of the substrate opposite the bottom electrode” (emphasis added).

In contrast, Nishihara does not disclose an uneven surface to suppress a spurious mode. Additionally, Nishihara does not disclose an uneven surface on a rear side of the substrate. Although Nishihara describes a thin film piezo-resonator with a substrate, Nishihara does not describe an uneven surface of the substrate. As pointed out in the Office Action, Nishihara does mention that the surface roughness of a sacrifice layer is greater than that of the substrate. However, this description of the surface roughness of the sacrifice layer does not require that the substrate might have an uneven surface. Moreover, the mention of the surface roughness of the sacrifice layer does not mean that a surface of the substrate is also rough. For example, a rough surface of the sacrifice layer may be rougher than a smooth surface of the substrate. Hence, the description of a rough surface of the sacrifice layer is insufficient to support the conclusion, as asserted in the Office Action, that the substrate might have a rough surface.

Moreover, even if the substrate of Nishihara were to have a rough surface, there is no description in Nishihara of a rough surface of the substrate being able to suppress a spurious mode of the thin film piezo-resonator. Thus, even if Nishihara were characterized to describe a rough surface, generally, of the substrate, the purported rough surface of the substrate is not described as suppressing a spurious mode. Therefore, Nishihara does not describe an uneven surface of the substrate to suppress a spurious mode.

Additionally, Nishihara also fails to describe a rough surface of the substrate on a rear side of the substrate. In other words, even if Nishihara were characterized to describe a rough surface of the substrate, there is no description in Nishihara of where the purported rough surface might be. Furthermore, it appears that the comparison of the surfaces of the sacrifice layer and the substrate would apply to a front side of the substrate adjacent the sacrifice layer (or the resulting cavity). Hence, the reference in Nishihara to a surface of the substrate should be characterized, at best, as referring to a front surface of the substrate—it should not be characterized as referring to a rear surface of the substrate. Therefore, Nishihara does not describe an uneven surface on a rear side of the substrate.

For the reasons presented above, Nishihara does not disclose all of the limitations of the claim. In particular, Nishihara does not disclose an uneven surface of the substrate because Nishihara merely describes a rough surface of the sacrifice layer. Also, Nishihara does not disclose an uneven surface of the substrate to suppress a spurious mode because Nishihara is silent as to what potential affects a rough surface of the substrate might have on the operation of the thin film piezo-resonator. Additionally, Nishihara does not disclose an uneven surface on a rear side of the substrate because Nishihara does not indicate what surface of the substrate might be relatively less rough compared with the sacrifice layer. Accordingly, Applicants respectfully assert claim 7 is patentable over Nishihara because Nishihara does not disclose all of the limitations of the claim.

Independent Claim 20

Applicants respectfully assert independent claim 20 is patentable over Nishihara at least for similar reasons to those stated above in regard to the rejection of independent claim 1. In particular, claim 20 recites “wherein each of the first and second BAW resonators comprises a substrate with an uneven surface to suppress a spurious mode, wherein the uneven surface is on a rear side of the substrate opposite the bottom electrode” (emphasis added).

Here, although the language of claim 20 differs from the language of claim 7, and the scope of claim 20 should be interpreted independently of claim 7, Applicants respectfully assert that the remarks provided above in regard to claim 7 also apply to claim 20. Accordingly, Applicants respectfully assert claim 20 is patentable over the cited references because the cited references do not teach a substrate with an uneven surface to suppress a spurious mode or an uneven surface on a rear side of the substrate.

Dependent Claims

Claims 8-10, 12-19, and 21-26 depend from and incorporate all of the limitations of the corresponding independent claims 7 and 20. Applicants respectfully assert claims 8-10, 12-19, and 21-26 are allowable based on allowable base claims. Additionally, each of claims 8-10, 12-19, and 21-26 may be allowable for further reason.

CONCLUSION

Applicants respectfully request reconsideration of the claims in view of the proposed amendments and the remarks made herein. A notice of allowance is earnestly solicited.

Respectfully submitted,

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